REV. A

DATE <u>March 25, 1988</u> (Revised May 31, 1988)

FMEA #:60-570-0790-01-MD176,177-01
-MD1,2,3,4-01

END ITEM EFFECTIVITY:

X X X

OV102 OV103 OV104

MODEL NO: S70-0790-01

SUBSYSTEM: ECLSS

PART NUMBER: PART NAME:

REFERENCE DESIGNATION:

MC276-0030 Coupling

Coupling MD176 MD177
With Cut-off Valve MD1 MD2 MD3 MD4

CRITICALITY NUMBER: 2

FUNCTION: To provide interconnection and cut off capacity in

the NH transport.

CRITICAL FAILURE MODE: Leakage to exterior of component.

CAUSE: Mechanical failure, mechanical shock.

FAILURE EFFECT ON:

(A) END ITEM: Leakage would preclude servicing operations.

(B) INTERFACING SUBSYSTEM(S): No reasonable effect.

(C) ORBITER: Discharge of NH₃ onto the thermal protection system. Possible tile installation damage/degradation.

(D) PERSONNEL: Exposure of servicing personnel to NH3.

HAZARDS: Possible damage to flight hardware.

Possible degradation of flight hardware.

Possible exposure of personnel to NH3 residual vapor.

DATE: March 25, 1988 REV: May 31, 1988

ACCEPTANCE RATIONALE

DESIGN: Review of assembly documents and Specification Material Document (SMD) MC276-0030 has provided design data points to be complied with for acceptance rationale.

Cesign data points:

Per QQ-c-320A Chromium plating (electrodeposited) for corrosion protection per type III servicing fluid NH3. Operational envelope is to exceed the expected use envelope. Dual seals are provided for leakage prevention. Hanual engagement and closure with assurances of positive locking feature. No visible spillage at any pressure when disconnected.

TEST:

<u>PRE-OPERATIONAL:</u> Par OMI V1027, V3519: pressure test to system operating pressures with GN_2 psig, are conducted prior to ammonia servicing. Controlled amounts of NH_3 are used to wat the GSE lines prior to full servicing.

INSPECTION:

PRE-INSTALLATION: Per MC276-0030 (5.1 - 5.1.5)
Acceptance Test: Examination of product, The AHC, the AHC cap the GHC, and the GHC cap shall each be carefully examined to determine conformance to the requirements of this specification. Particular attention shall be given to weight, workmanship, finish, dimensions, construction, identification, marking, traceability level, and to the use of certified materials and processes.

AGE LIFE: Per OMI S6013 (V6D41), the assembly is inspected annually for compliance to the material and assembly specifications.

PRE-OPERATIONAL: Per OMI V1027, V3519 - components are inspected for cleanliness per MAO110-311, level 500 by visual inspection of bagging and sealing of interface ports and/or research of applicable TAIR books prior to each use.

OPERATION: No application to risk reduction.

DETECTION:

Visual and olfactory detection of ammonia discharge and the use of hand held sniffers to detect leakage.

CORRECTION: Isolation and replacement.

PAILURE HISTORY:

Review of FRACA Data Base has provided no failure history on item MC276-0030, ECLSS Operations.